

4-13-00

Re /A

REISSUE



REISSUE PATENT APPLICATION TRANSMITTAL



Attorney Docket No. 68410

First Named Inventor or
Application Identifier: Mark D. SIEGLER

Box PATENT APPLICATION
Commissioner of Patents and Trademarks
ATTENTION: Assistant Commissioner
for Patents
Washington, D.C. 20231

Sir:

Transmitted herewith is the application
for reissue of:

- (X) U.S. Utility Patent
() Plant Patent
() Design Patent

) CERTIFICATE OF MAILING BY "EXPRESS MAIL"
) "Express Mail" Mailing Label Number
) _____ EL 528415355 US
) Date of Deposit April 12, 2000
) I hereby certify that this paper or fee is being
) deposited with the United States Postal Service
) "Express Mail Post Office to Addressee" Service
) under 37 CFR §1.10 on the date indicated above and
) is addressed to the Commissioner of Patents and
) Trademarks, Washington, D.C. 20231.
)
) ED PRICE
) (Typed or printed name of person mailing)
) 
) (Signature of person mailing)

No. 5,743,046 issued on April 28, 1998,

Inventors: Mark D. Siegler, James S. Chang, and David J. Miller

Title: JACK SHAFT GARAGE DOOR OPERATOR

ENCLOSED ARE THE FOLLOWING:

1. (X) 7 pages of the specification and claims.
(X) 1 page of abstract
(X) 2 sheets of drawings () Formal () Informal.

2. (X) Drawings:

- (X) No changes in the drawings, upon which the original patent was issued, are to be made. Therefore, in accordance with 37 C.F.R. §1.174(a), please find attached, in the size required for original drawings:
(X) a copy of the printed drawings of the patent.
() a photoprint of the original drawings.
(X) a letter requesting transfer of the drawings from the original patent file to this reissued application is attached.

3. (X) Declaration

(X) 3 pages of Declaration (UNSIGNED).

4. () Inventorship:

() A newly-executed oath or declaration and power of attorney is enclosed (for continuation-in-part applications, or for continuation or divisional applications naming an inventor not named in the prior application) (§1.63(a), (d) (5) and (e)).

() Because this application is being filed by fewer than all of the inventors named in the prior application, delete the following inventor(s) named in the prior nonprovisional application (37 C.F.R. §1.63(d)(1)(2)):

() The names of persons believed to be the actual inventors are set forth in the enclosed unexecuted oath or declaration and power of attorney (§1.41(a) and §1.53(b)).

5. () Assignment(s) of the invention to _____ and cover sheet are enclosed.

() A check in the amount of \$_____ to cover the fee for recording the assignment(s) is enclosed.

6. (X) The prior application is assigned of record to
The Chamberlain Group, Inc.

7. Letters Patent. Enclosed is:

() Original letters patent.

() Declaration that original letters patent lost or inaccessible.

() A copy of the original printed patent.

(X) Offer to surrender the original letters patent in accordance with 37 C.F.R. §1.178.

() Offer to surrender is by the inventor.

(X) Offer to Surrender is by assignee of the entire interest.

8. (X) Also enclosed:

(X) Assent of Assignee to reissue

(X) Certificate Under 37 C.F.R. §3.73(B)

9. () A preliminary amendment is enclosed.

3. (X) Declaration

(X) 3 pages of Declaration (UNSIGNED).

4. () Inventorship:

() A newly-executed oath or declaration and power of attorney is enclosed (for continuation-in-part applications, or for continuation or divisional applications naming an inventor not named in the prior application) (§1.63(a), (d)(5) and (e)).

() Because this application is being filed by fewer than all of the inventors named in the prior application, delete the following inventor(s) named in the prior nonprovisional application (37 C.F.R. §1.63(d)(1)(2)):

() The names of persons believed to be the actual inventors are set forth in the enclosed unexecuted oath or declaration and power of attorney (§1.41(a) and §1.53(b)).

5. () Assignment(s) of the invention to _____ and cover sheet are enclosed.

() A check in the amount of \$_____ to cover the fee for recording the assignment(s) is enclosed.

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() Offer to surrender is by the inventor.
(X) Offer to Surrender is by assignee of the entire interest.

8. (X) Also enclosed:

(X) Assent of Assignee to reissue
(X) Certificate Under 37 C.F.R. §3.73(B)

9. () A preliminary amendment is enclosed.

10. () Small Entity Status (37 C.F.R. §1.28(a)(2)):
- () A statement of status as a small entity is enclosed.
- () A statement of status as a small entity was filed in the prior application, and small entity status is still proper and desired in this reissue application.
- () Status as a small entity is no longer claimed.
11. (X) A separate written request under 37 C.F.R. §1.136(a)(3), which is a general authorization to treat any concurrent or future reply requiring a petition for an extension of time under 37 C.F.R. §1.136(a) for its timely submission as incorporating a petition for an extension of time for the appropriate length of time, is enclosed.
12. () An Information Disclosure Statement is enclosed.
- () A Form PTO-1449 is enclosed.
- () _____ References (copies) listed on the Form PTO-1449 are enclosed.
13. () A MicroFiche Computer Program (Appendix) is enclosed.
14. (X) A Return Receipt Postcard is enclosed (MPEP §503).
15. () A Nucleotide and/or Amino Acid Sequence Submission is enclosed.
- () A Computer Readable Copy is enclosed.
- () A Paper Copy (Identical to Computer Copy) is enclosed.
- () A Statement Verifying Identity of above Copies is enclosed.
16. () Priority of application number / filed on
 in is claimed under
 35 U.S.C. §119.
- () The certified copy of the priority document has been filed in prior application number / , filed
 .
- () A certified copy of the priority document is enclosed.
17. (X) Power of Attorney:
- (X) The power of attorney in the U.S. patent is to:
- (X) Kenneth H. Samples Reg. No. 25,747,
FITCH, EVEN, TABIN, & FLANNERY
Suite 1600
120 South LaSalle Street
Chicago, Illinois 60603-3406
and other members of the firm.
- () Customer Number 22242.

- (X) The power appears in the original papers in the prior application.
- () Since the power does not appear in the original papers in the prior application a new power is enclosed.
18. (X) The filing fee is calculated below:
- | | | |
|----------------------------------------------------------------------------------|-------------|----------------------------|
| (X) Basic Fee | \$ 690.00 | \$ <u>Deferred</u> |
| • (X) Independent Claims <u>3</u> - <u>3</u> = <u>0</u> x \$ 78.00 = \$ <u>0</u> | | |
| • (X) Total Claims <u>17</u> - <u>20</u> = <u>0</u> x \$ 18.00 = \$ <u>0</u> | | |
| • () Fee for Multiply Dependent Claims \$260.00 | \$ <u>0</u> | |
| or | | |
| () Basic Design Fee | \$ 310.00 | \$ <u> </u> |
| Total of above Calculations | | \$ <u>Deferred</u> |
| Reduction by 50% for Filing by Small Entity | | \$ <u> </u> |
| Total | | \$ <u>Deferred</u> |
20. (X) **PAYMENT OF THE FILING FEE IS TO BE DEFERRED UNTIL FILING OF THE SIGNED DECLARATION. DO NOT CHARGE OUR DEPOSIT ACCOUNT.**
21. (X) The Commissioner is hereby authorized to charge any fees which may be required under 37 C.F.R. §§1.16 and 1.17 and are not paid herewith, or credit any overpayment, to Deposit Account Number 06-1135. A duplicate copy of this request is enclosed.
- 22 (X) Address all future communications to Customer Number 22242.



2 2 2 4 2 —

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April 12, 2000

(Date)

Kenneth H. Samples
 Kenneth H. Samples
 Registration No. 25,747
 (x) Attorney or agent of record
 () Filed under §1.34(a)

REISSUE

ATTORNEY DOCKET
No. 68410

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

**In re Reissue of U.S. Patent
No. 5,743,046**

Applicants:	Mark D. Siegler James S. Chang David J. Miller) <u>CERTIFICATE OF MAILING BY "EXPRESS MAIL"</u>))" Express Mail" Mailing Label Number)) EL 528415355 US
Application No.:	N/A)
Filed:	Concurrently Herewith) Date of Deposit <u>April 12, 2000</u>)) I hereby certify that this paper or fee is) being deposited with the United States) Postal Service "Express Mail Post Office) to Addressee" Service under 37 CFR §1.10) on the date indicated above and) is addressed to the Commissioner of) Patents and Trademarks, Washington, D.C.) 20231.
Title:	JACK SHAFT GARAGE DOOR OPERATOR)
Group)
Art Unit:	N/A)
Examiner:	N/A) ED PRICE)) (Typed or printed name of person mailing))) <u>Ed Price</u>)) (Signature of person mailing)

ASSENT OF ASSIGNEE TO REISSUE

BOX PATENT APPLICATION
Honorable Commissioner of Patents
and Trademarks
ATTENTION: Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

THE CHAMBERLAIN GROUP, INC., the assignee of the entire title and interest in United States Patent No. 5,743,046, by reason of an assignment from the inventors recorded in the United States Patent and Trademark Office on October 30, 1995 at Reel 7871, Frame 0969, hereby assents to the filing of the above-captioned application for reissue of said U.S. Patent No. 5,743,046. A Certification Under 37 C.F.R. §3.73(B) accompanies this Assent.

THE CHAMBERLAIN GROUP, INC.

Dated: April 7, 2000

By: Mark B. Tone
Mark B. Tone
Title: Vice President

REISSUE

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of U.S. Patent
No. 5,743,046

Applicants:	Mark D. Siegler James S. Chang David J. Miller))))	<u>CERTIFICATE OF MAILING BY "EXPRESS MAIL"</u>
Application No.:	N/A)	"Express Mail" Mailing Label Number <u>EL 528415355 US</u>
Filed:	Concurrently Herewith)	Date of Deposit <u>April 12, 2000</u>
Title:	JACK SHAFT GARAGE DOOR OPERATOR\)	I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" Service under 37 CFR §1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Washington, D.C. 20231.
Group Art Unit:	N/A)	<u>ED PRICE</u>
Examiner:	N/A)	(Typed or printed name of person mailing)  (Signature of person mailing)

CERTIFICATE UNDER 37 C.F.R. §3.73(B)

BOX PATENT APPLICATION
Commissioner of Patents and Trademarks
ATTENTION: Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

This Certificate is being filed in connection with the above-captioned reissue application filed under cover herewith, of application 08/829,742 filed March 31, 1997, now U.S. Patent No. 5,743,046, which was a continuation of application 08/456,874 filed June 1, 1995, now abandoned. The reissue filed concurrently herewith is called "the present application" herein.

The Chamberlain Group, Inc., a corporation, certifies
that it is the assignee of the entire right, title and interest
in the present application by virtue of:

A chain of title from the inventors, of the present patent application, to the current assignee as shown below:

From Mark D. Siegler, James S. Chang and David J. Miller to The Chamberlain Group, Inc. The document was recorded in the Patent and Trademark Office at Reel 7871, Frame 0969 on October 30, 1995.

A copy of the Assignment in the chain of title is attached.

The undersigned (whose title is supplied below) is empowered to sign this certificate on behalf of the Assignee identified above.

I hereby declare that all statements made herein of my own knowledge are true, and that all statements made on information and belief are believed to be true; and further, that these statements are made with the knowledge that willful false statements, and the like so made, are punishable by fine or imprisonment, or both, under Section 1001, Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

Date: April 7, 2000

Mark B. Tone
Mark B. Tone

Title: Vice President

JACK SHAFT DOOR GARAGE OPERATOR

This application is a continuation of application Ser. No. 08/456,874 filed Jun. 1, 1995, now abandoned.

BACKGROUND OF THE INVENTION

The invention relates in general to garage door operators and in particular to a jack shaft garage door operator having a pivoting arm for preventing cable associated with a pull-up cable drum from becoming slack during the operation of the door and for providing a positive door locking system.

One of the problems associated with jack shaft garage door operators is that while they are compact and may be conveniently used in garages which have little overhead room, they may present problems to the owners of the garage in that the cable may be payed out allowing the door to close under its own weight and if the door stalls or if the cable pay out drum rotates too far, the tension in the cable will drop and the cable may come off the drum necessitating a visit from a repairman.

In addition, the jack shaft garage door operator does not provide any secure locking facility other than a lock at the bottom of the door, which may be tampered with by a burglar. If the door is not locked by some other means, the bottom lock may be forced or damaged and the door can be lifted open and the garage entered by an intruder.

U.S. Pat. No. 3,785,809 discloses a door operator having a winch member built into a tilting door and movable with it. A cable is attached to a wall member supporting the door 30 and another end of the cable is connected to an extensible arm.

U.S. Pat. No. 2,185,828 discloses a catch for stopping a door from falling in the event that a sustaining cable or a counterbalance fails or breaks.

U.S. Pat. No. 4,385,471 discloses a door including a stopping member having a clip connection 29 which engages a cable. If the cable breaks, as shown in FIG. 4, the arm 27 rotates outwardly bringing a cam dog 26 having a plurality of teeth 32 into locking engagement with a roller 13a to prevent the roller 13a from moving, thereby suspending the door in position.

U.S. Pat. No. 4,520,591 to Calvagno discloses a system that is mechanically responsive to a break in a cable to prevent a door from falling. 45

French Patent No. 2634-815-A includes an "antidrop" safety mechanism having a cam plate 21 on either side of the door equipped with a convex toothed edge to engage a bracket in case of door suspension failure. None of the aforementioned documents teach or disclose solutions for preventing a door from being opened or from stopping an operation of a garage door operator to cause it to reverse to take up cable which may have inadvertently been payed off a cable drum of a jack shaft door operator.

What is needed then is an improved jack shaft garage door operator that avoids unwanted problems with the cable coming off the drum and provides security for the user.

SUMMARY OF THE INVENTION

A jack shaft garage door operator is useful for opening [a] and closing a movable garage door. The jack shaft garage door operator embodying the present invention includes a drive unit having an electric motor therein for driving a jack shaft. The jack shaft is mounted above a door opening and usually has coupled to it a spring, or the like, for providing a restoring force to the jack shaft to help raise the door and to

support a portion of the weight of the door that is not supported by the L-shaped rails that a door usually rides in. A pull-up cable drum is connected to the jack shaft to be rotated thereby and has a multi-strand steel pull-up cable connected thereto that may be payed out to lower a door or wound up to raise the door. The pull-up cable is typically connected to a bottom portion of the door and, when wound up, will cause the door to rise along vertical portions of L-shaped rails. A pivotable arm is mounted on the garage near the jack shaft and includes an arm extension having a rounded surface which may be a roller or may be fixed for engaging the multi-strand steel pull-up cable. The pivotable arm, including the cable engaging portion, is biased by a spring causing the cable engaging portion to maintain the cable under tension in the drum. In the event that the cable is inadvertently payed out, for instance, by the door having reached the bottom of its travel and the operator continuing to run, the pull-up arm is allowed to pivot upwardly by reduced tension in the cable and swings far enough upward that an operator arresting dog comes in contact with a toothed wheel mounted upon the jack shaft causing the garage door operator to stall. The garage door operator is otherwise a conventional garage door operator and when in a stalled condition, automatically reverses, causing the cable to be payed in and the door to be opened. Thus, the pivotable arm prevents the cable from coming off the cable drum. In addition, a stop or means for preventing the garage door from opening in the form of a metal plate is bolted on an upper panel of the garage door and, when in the closed position, is immediately beneath the pivoting arm of the cable when it is pulled downwardly by full tension on the cable. If the door is attempted to be breached, for instance by an intruder attempting to lift the door, the cable becomes slack allowing the pivoting arm to come out slightly so that it then engages compressionally the stop plate on the garage door thereby preventing further upward motion of the garage door.

It is a principal aspect of the present invention to provide a jack shaft garage door operator having a mechanical cable tension sensor for providing door reversal before a cable pays off a cable drum.

40 It is another aspect of the present invention to provide a jack shaft garage door operator having a door opening block adapted to engage a pivoting arm to prevent a door from being forced open.

Other advantages of the invention will become obvious to one of ordinary skill in the art upon a perusal of the following specification and claims in light of the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

50 FIG. 1 is an elevational view of a portion of a garage having a garage door in a closed position with a jack shaft garage door operator associated therewith and embodying the present invention;

FIG. 2 is an enlarged isometric view having portions broken away to show details of a portion of the jack shaft garage door operator shown in FIG. 1:

FIG. 3 is a side elevational view of a portion of the jack shaft garage door operator shown in FIGS. 1 and 2 with the garage door positioned in a closed position; and

FIG. 4 is a side elevational view, partially in section, showing a cable tensioning meter of the jack shaft garage door operator positioned to take up slack in a pull-up cable.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring now to the drawings and especially to FIG. 1, a jack shaft garage door operator embodying the present

invention and generally identified by numeral 10 is shown therein. The jack shaft garage door operator 10 is mounted on a garage 12 near a garage door opening 14 which has associated with it a movable multiple panel garage door 16.

The jack shaft garage door operator 10 includes a drive unit 20 having a jack shaft 22 coupled thereto to be turned thereby. A pull-up cable unit 24 is mounted on the jack shaft 22 to be turned and a pull-up cable 26 is wound around the cable drum 24 to be pulled upwardly. A pivotable arm assembly 28 is mounted on a header 30 of the garage 12 immediately above the door opening 14 adjacent the jack shaft 22 and includes a cylindrical cable engaging member or cable tensioner arm 34 for engaging the pull-up cable 26 and ending in a cable retaining knob 35 for preventing the pull-up cable 26 from sliding off the tensioner arm 34. A door lock bracket or means 36 for preventing the garage door from opening is mounted on the garage door 16.

More particularly, the garage door 16 is a multiple paneled door consisting of a plurality of rectangular panels 40, 42, 44 and 46. The panels 40 and 42 are connected by a plurality of hinges 50. Panels 42 and 44 are connected by a plurality of hinges 52. Panels 44 and 46 are connected by a plurality of hinges 54. The door is carried on a pair of rollers in a pair of L-shaped tracks, details of one of which are shown in FIGS. 2 through 4. The exemplary L-shaped track 60 shown in FIG. 2 includes a vertical portion 62, a curved portion 64 and a horizontal portion 66. Rollers 70 and 72 positioned on respective shafts 74 and 76 mounted to the door panel 46 ride in the track 60 and carry the door panel upwardly and downwardly. In operation, when the door 16 is lowered, the jack shaft 22 is rotated to pay out the cables 26 and 27 from the pull-up cable drums 24 and 25.

The pivoting arm assembly 28 includes a base plate assembly 80 mounted on the header 30 and a pivot 82 which supports a pivotable arm 84. The pivotable arm 84 includes a bracket-type stop member 86 having wall portions 88 and 90 supporting a cross bar 92. The pivoting arm 28 includes a bottom wall 96 and a pair of sidewalls 98 and 100 for providing strength thereto, in particular, compressional strength. The arm 84 is biased outwardly and upwardly by a spring 104 and is normally held in a substantially vertical position as shown in FIG. 3 by tension in cable 26 when only a sufficient amount of cable 26 has been payed out so that the door is either partially supported by cable 26 or has been closed without additional cable 26 having been payed out. In the event that, for whatever reason, the drum 24 continues to turn, additional cable 26 is payed out and the arm 84 tends to pivot upwardly until it reaches a substantially horizontal position as shown in FIG. 4. At that point the cross bar 92 engages a shaft lock hub comprising a toothed wheel 120 having a plurality of detents or teeth 122, 124, 126, 128, 130 and 132 formed thereon and thereby prevents further turning of the jack shaft 22, stalling the drive unit 20 which causes the drive unit 20 to automatically reverse, pulling the cable 26 back in and swinging the arm away from the cog wheel 120. In addition, it should be noted that the cog wheel 120 has asymmetric cogs with perpendicular edges as exemplified by cog 120 with perpendicular edge 136 and sloping edge 138 allowing the jack shaft 22 to rotate upwardly despite the cross-bar 92 being in engagement with the teeth 120 while preventing downward rotation.

- In addition, if the drive unit 20 is stopped and the door 16 is attempted to be opened, in other words it is forced upward as shown in FIG. 2, the cable 26 becomes slack allowing the cable arm to pivot outwardly, as shown in FIG. 2, sufficiently so that it engages the stop 36, more specifically a stop lip 150 thereof. The stop 36 also includes a base wall 152 and a pair of sidewalls 154 and 156 for providing strength so that the stop lip 150 is not deformed by being brought into compressional engagement with the movable arm 84. In addition, since the movable arm 84 is substantially trough shaped with sidewalls 98 and 100 providing strength to the base wall 96, the compressional engagement will not tend to crush the arm and will prevent the door 16 from rising farther.
- Thus, what has been provided is a mechanical device for providing security for a garage door by preventing the garage door from being inadvertently opened while also preventing cable from being accidentally payed off the drums 24 and 26 which would necessitate an expensive repair call.

While there has been illustrated and described a particular embodiment of the present invention, it will be appreciated that numerous changes and modifications will occur to those skilled in the art, and it is intended in the appended claims to cover all those changes and modifications which fall within the true spirit and scope of the present invention.

What is claimed is:

1. A jack shaft garage door operator for opening and closing a movable garage door, comprising:
 - a drive unit;
 - a jack shaft coupled to the drive unit to be turned thereby;
 - a pull-up cable drum connected to the jack shaft to be driven thereby;
 - a pull-up cable for connection to a movable garage door and connected to the pull-up cable drum to be raised and lowered thereby;
 - a pivotable arm mounted in proximity with the jack shaft and engaging the pull-up cable, said pivotable arm including a member for engaging the pull-up cable and holding it in tension, and means for engaging the jack shaft to prevent further jack shaft rotation when the pull-up cable becomes slack; and
 - means for preventing the garage door from opening adapted for engagement by the pivotable arm when the garage door is lifted without the drive unit operating.
2. A jack shaft garage door operator for opening and closing a movable garage door according to claim 1 wherein the means for engaging the jack shaft comprises a cross bar.
3. A jack shaft garage door operator for opening and closing a garage door according to claim 1 wherein the means for preventing the garage door from opening comprises a door lock bracket that engages the pivotable arm.
4. A jack shaft garage door operator for opening and closing a garage door according to claim 1 further comprising a shaft lock hub mounted on the jack shaft and rotatable therewith, the shaft lock hub being engaged by the pivotable arm when the cable tension drops.

* * * * *

5. A jack shaft garage door operator for opening and closing a movable garage door, comprising:
a drive unit;
a jack shaft coupled to the drive unit to be turned thereby;
a pull-up cable drum connected to the jack shaft to be driven thereby;
a pull-up cable for connection to a movable garage door and connected to the pull-up cable drum to be raised and lowered thereby;
a pivotable arm mounted in proximity with the jack shaft and engaging the pull-up cable, said pivotable arm including a member for engaging the pull-up cable and holding it in tension; and
stop apparatus for inhibiting the garage door from opening adapted for engagement by the pivotable arm when the garage door is lifted.

6. A jack shaft garage door operator for opening and closing a movable garage door according to claim 5 wherein the pivotable arm comprises engagement apparatus for engaging the jack shaft to prevent further jack shaft rotation when the pull-up cable becomes slack.

7. A jack shaft garage door operator for opening and closing a movable garage door according to claim 6 wherein the engagement apparatus comprises a cross bar.

8. A jack shaft garage door operator for opening and closing a garage door according to claim 5 wherein the stop apparatus comprises a door lock bracket that engages the pivotable arm.

9. A jack shaft garage door operator for opening and closing a garage door according to claim 5 further comprising a shaft lock hub mounted on the jack shaft and rotatable therewith, the shaft lock hub being engaged by the pivotable arm when the cable tension drops.

10. A jack shaft garage door operator for opening and closing a movable garage door, comprising:
a drive unit;
a jack shaft coupled to the drive unit to be turned thereby;
a pull-up cable drum connected to the jack shaft to be driven thereby;
a pull-up cable for connection to a movable garage door and to the pull-up cable drum for raising and lowering the door by tension in the pull-up cable; and
a mechanical device responsive to tension in the pull-up cable for inhibiting the garage door from being opened and for preventing cable from being payed off the drum without the drive unit operating.

11. A jack shaft garage door operator for opening and closing a movable garage door according to claim 10 wherein the mechanical device comprises a pivotable arm mounted in proximity with the jack shaft and engaging the pull-up cable.

12. A jack shaft garage door operator for opening and closing a movable garage door according to claim 10 further comprising stop apparatus for engagement by the pivotable arm when the garage door is lifted.

13. A jack shaft garage door operator for opening and closing a movable garage door according to claim 11 wherein the pivotable arm comprises engagement apparatus for engaging the jack shaft to prevent further jack shaft rotation when the pull-up cable becomes slack.

14. A jack shaft garage door operator for opening and closing a movable garage door according to claim 13 wherein the engagement apparatus comprises a cross bar.

15. A jack shaft garage door operator for opening and closing a garage door according to claim 12 wherein the stop apparatus comprises a door lock bracket that engages the pivotable arm.

16. A jack shaft garage door operator for opening and closing a garage door according to claim 10 further comprising a shaft lock hub mounted on the jack shaft and rotatable therewith, the shaft lock hub being engaged by the mechanical device when the cable tension drops.

ABSTRACT

A jack shaft garage door operator for opening and closing a movable garage door has a drive containing an electric motor. A rotatable jack shaft is connected to the drive unit to be driven thereby. A pull-up cable drum is connected to and driven by the jack shaft. A pull-up cable extends from the drum about which it is wound and connects to a bottom part of the garage door to raise the door. A pivoting arm is mounted near the jack shaft and provides tension to the cable. A shaft lock hub mounted on the jack shaft is engaged and locked by the arm if the tension in the cable drops. A stop is mounted on the garage door for engagement by the movable arm in the event that the door is opened without the cable being drawn in the cable drum.

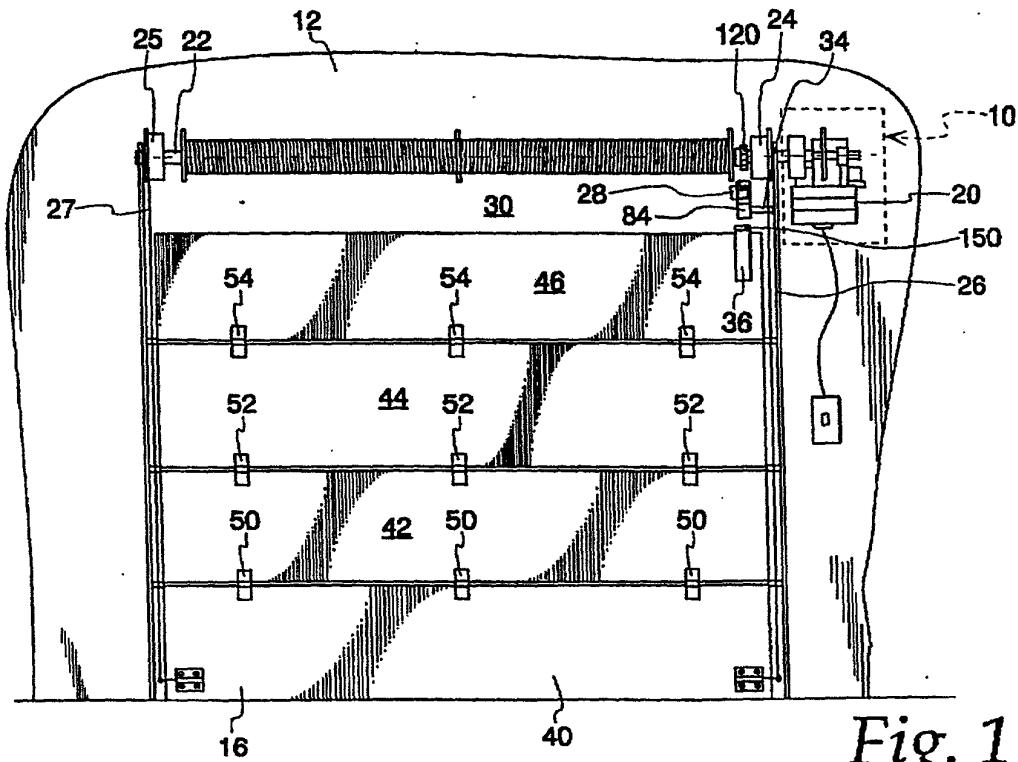


Fig. 1

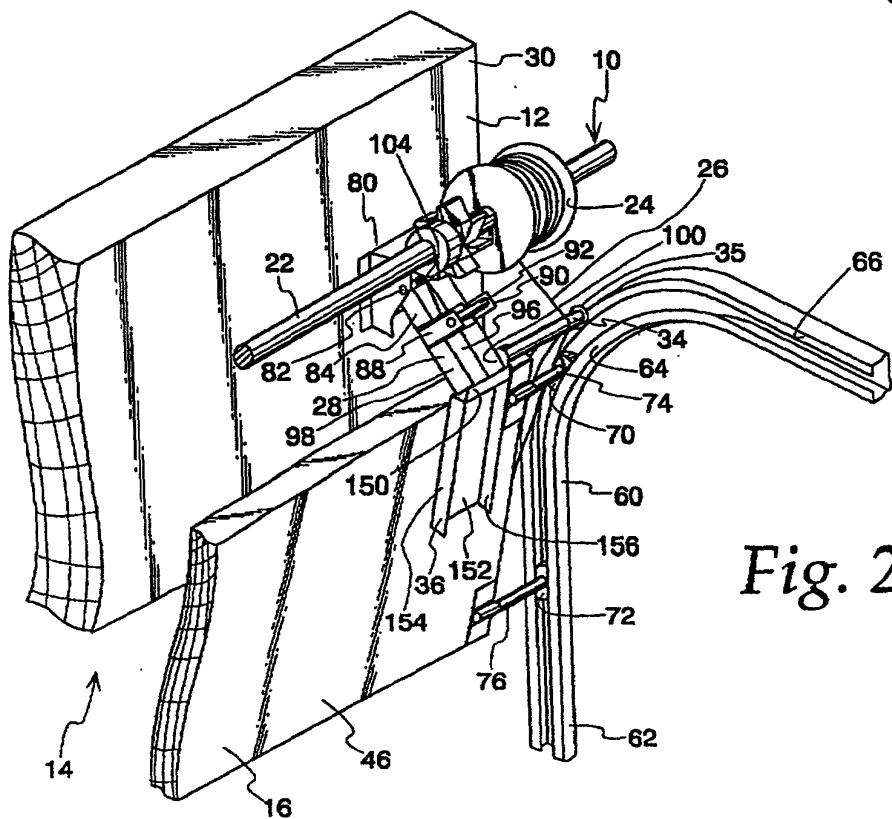


Fig. 2

DRAFTING AND DESIGN

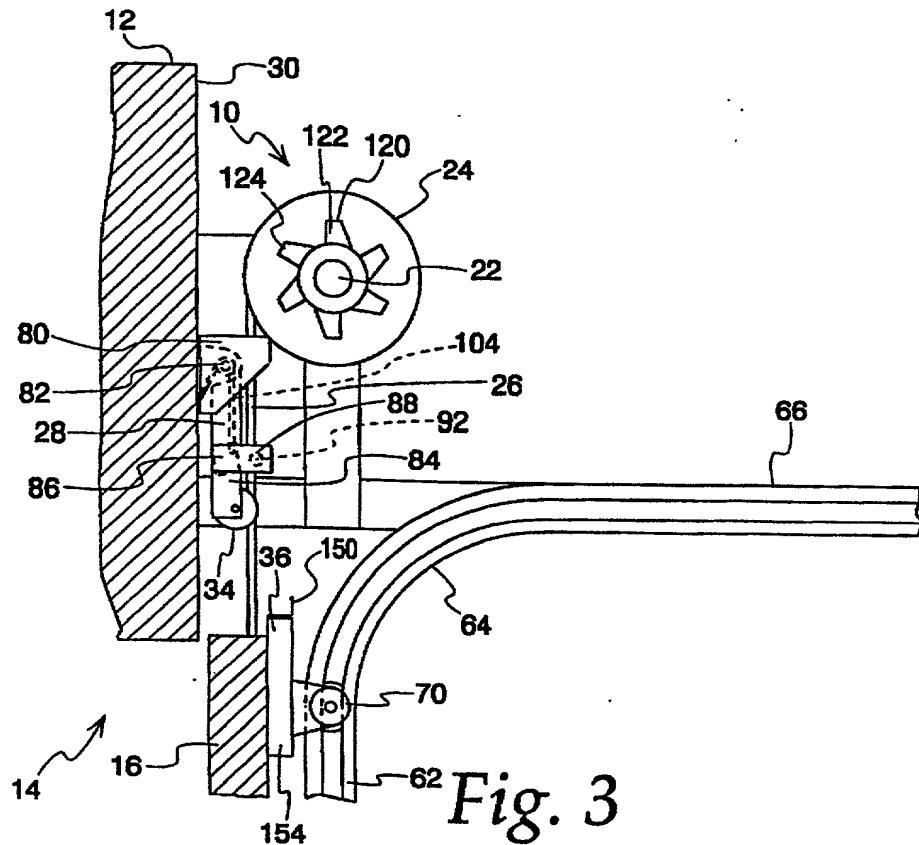


Fig. 3

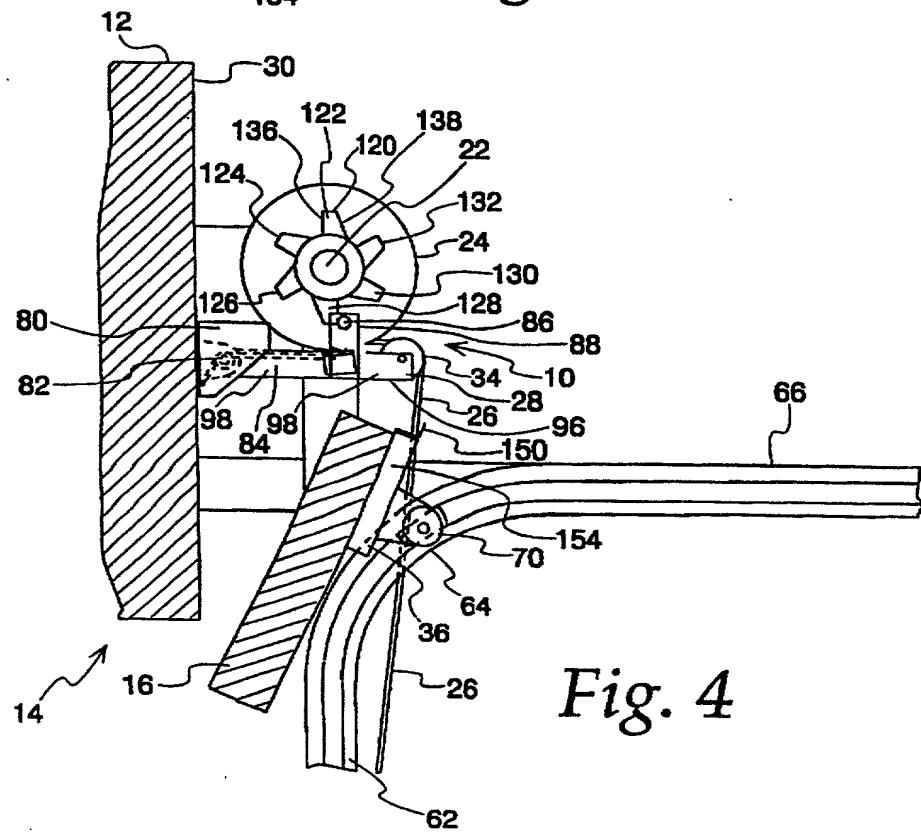
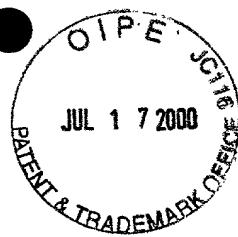


Fig. 4



3

REISSUE

ATTORNEY DOCKET
NO. 68410

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of U.S. Patent

No. 5,743,046

Applicant(s): Mark D. Siegler
James S. Chang
David J. Miller

Application No.: 09/547,563

Filed: April 12, 2000

Title: JACK SHAFT GARAGE
DOOR OPERATOR

Group Art
Unit: Unknown

Examiner: Unknown

CERTIFICATE OF MAILING

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20231, on this date.

7/17/00 Kenneth Chang
Date Registration No. 25,747
Attorney for Applicant

DECLARATION

BOX PATENT APPLICATION

Honorable Commissioner of Patents
and Trademarks

ATTENTION: Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

WE, MARK D. SIEGLER, JAMES S. CHANG and DAVID J. MILLER
hereby declare that:

1. Our respective residences, post office addresses and
citizenship are as stated below next to our names.

2. We verily believe ourselves to be the original,
first and joint inventors of the subject matter which is claimed
in the present application for which we solicit a reissue patent
on the invention entitled "Jack Shaft Garage Door Operator."



3. We have reviewed and understand the content of the Specification, including the Claims of the present application.

4. The entire title of U.S. Letters Patent No. 5,743,046 entitled "Jack Shaft Door Garage Operator" (the '046 patent) which issued April 28, 1998, is vested in The Chamberlain Group, Inc.

5. We acknowledge the duty to disclose information which is material to the examination of the present application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

6. There is no foreign application for patent or inventor's certificate on this invention filed by us or our legal representatives or assigns having a filing date before that of any application on which priority is claimed.

7. We believe the aforesaid Letters Patent 5,743,046 to be wholly or partly inoperative by reason of our claiming less than we had a right to claim in the patent. More specifically, we believe that the sole independent Claim 1 is too narrow in that it refers to a means for engaging the jack shaft and the invention more broadly encompasses a jack shaft garage door operator.

8. The above errors arose without any deceptive intention on our part.

9. All statements made herein of our own knowledge are true and all statements made on information and belief are believed to be true; and further these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of sole or one joint inventor: Mark D. Siegler

Inventor's signature: Mark Siegler

Date: 6/29/00

Residence: Aurora, Illinois
(City and State for U.S. Residents;
City and Country for others)

Post Office Address: 2362 Adamsway Drive
Aurora, IL 60504

Citizenship: U.S.A.

Full name of sole or one joint inventor: James S. Chang

Inventor's signature: _____

Date: _____

Residence: Arlington Heights, Illinois
(City and State for U.S. Residents;
City and Country for others);

Post Office Address: 11 West Emerson
Arlington Heights, IL 60005

Citizenship: U.S.A.

Full name of sole or one joint inventor: David J. Miller

Inventor's signature: David J. Miller

Date: 6/26/00

Residence: Arlington Heights, Illinois
(City and State for U.S. Residents;
City and Country for others)

Post Office Address: 1205 North Dunton
Arlington Heights, IL 60004

Citizenship: U.S.A.



3
REISSUE

ATTORNEY DOCKET
NO. 68410

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of U.S. Patent
No. 5,743,046

Applicant(s): Mark D. Siegler
James S. Chang
David J. Miller

Application No.: 09/547,563

Filed: April 12, 2000

Title: JACK SHAFT GARAGE
DOOR OPERATOR

Group Art

Unit: Unknown

Examiner: Unknown

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CERTIFICATE OF MAILING

I hereby certify that this paper is
being deposited with the United States
Postal Service as first class mail in an
envelope addressed to: Commissioner of
Patents and Trademarks, Washington, D.C.
20231, on this date.

Date 7/17/00 Kenneth H. Chang
Registration No. 25,747
Attorney for Applicant

DECLARATION

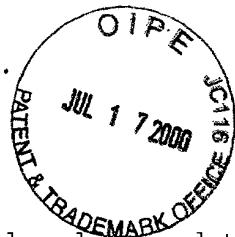
BOX PATENT APPLICATION
Honorable Commissioner of Patents
and Trademarks
ATTENTION: Assistant Commissioner for Patents
Washington, D.C. 20231

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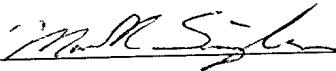
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Full name of sole or one joint inventor:

Mark D. Siegler

Inventor's signature:



Date:

4/29/00

Residence:

Aurora, Illinois

(City and State for U.S. Residents;
City and Country for others)

Post Office Address:

2362 Adamsway Drive

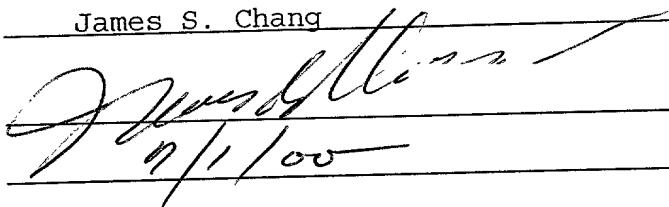
Aurora, IL 60504

Citizenship:

U.S.A.

Full name of sole or one joint inventor:

James S. Chang


James S. Chang
9/1/00

Inventor's signature:

Date:

Residence:

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(City and State for U.S. Residents;
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11 West Emerson

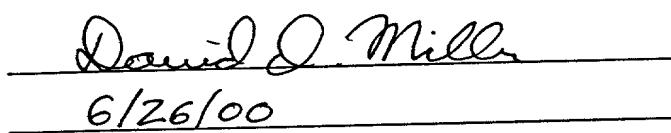
Arlington Heights, IL 60005

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David J. Miller
6/26/00

Inventor's signature:

Date:

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(City and State for U.S. Residents;
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Arlington Heights, IL 60004

Citizenship:

U.S.A.

REISSUE

ATTORNEY DOCKET
NO. 68410

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue of U.S. Patent

No. 5,743,046

Applicant(s): Mark D. Siegler
James S. Chang
David J. Miller

Application No.: N/A

Filed: Concurrently Herewith

Title: JACK SHAFT GARAGE
DOOR OPERATOR

Group Art

Unit: Unknown

Examiner: Unknown

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DECLARATION

BOX PATENT APPLICATION

Honorable Commissioner of Patents
and Trademarks

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Washington, D.C. 20231

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